



Jay C. Keithley Vice President

Law and External Affairs
United Telephone Companies

1850 M Street, N.W., 11th Floor Washington, D.C. 20036 Telephone: (202) 828-7453

RECEIVED

JAN - 8 1993

January 8, 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Donna R. Searcy, Secretary Federal Communications Commission 1919 M Street, N.W., Room 222 Washington, D.C. 20036

RE: In the Matter of Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, ET Docket No. 92-100

Dear Ms. Searcy:

Attached are the original and five copies of the Reply Comments of Sprint in the proceeding referenced above.

Sincerely,

Jay C. Keithley

Say C. Keithley

Attachment

JCK/mlm

No. of Copies rec'd 045 List A B C D E

JAN - 8 - 1993

Before the FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. 20554

In the Matter of)	
Amendment of the Commission's)	GEN Docket No. 90-314 $/$
Rules to Establish New Personal)	ET Docket No. 92-100
Communications Services	1	No. of the Contract of the Con

REPLY COMMENTS OF SPRINT

Respectfully submitted,

SPRINT COMMUNICATIONS COMPANY L.P.

Jay C. Keithley
Leon M. Kestenbaum
Phyllis A. Whitten
1850 M Street N.W.
Suite 1100
Washington, D.C. 20036
(202) 828-1030

W. Richard Morris P. O. Box 11315 Kansas City, MO 64112 (913) 624-3096

ITS ATTORNEYS

January 8, 1993

SUMMARY

Sprint supports the allocation of spectrum for PCS services and the Commission's goal of promoting rapid deployment of these new and innovative services. In Sprint's view, if the Commission adopts policies based on the comments of some parties, the Commission will not realize its goal.

PCS will be optimally deployed if three 30 MHz PCS licenses are granted rather than fragmenting the available spectrum into smaller 20 MHz slivers that are likely to support only niche services. Further, rapid deployment of PCS is most likely achieved if MSAs and RSAs are the basis for the license scope.

To optimize competition, non-dominant cellular providers and their affiliates should not be precluded from participating in PCS in areas where they offer service. Up to a 30 percent proportional market interest in cellular should be allowed before PCS eligibility is affected.

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
II.	30 MHZ OF SPECTRUM IS NEEDED FOR A FULL-FEATURED PCS SERVICE	2
III.	THREE LICENSES PER MARKET ARE APPROPRIATE	5
IV.	PCS LICENSE AREAS SHOULD BE COTERMINOUS WITH CELLULAR MSAS AND RSAS	6
V.	ELIGIBILITY FOR PCS SHOULD NOT BE PRECLUDED IF AN ENTITY HOLDS A THIRTY PERCENT OR LESS PROPORTIONAL MARKET INTEREST IN A CELLULAR LICENSE FOR THE SAME OR AN OVERLAPPING AREA	8
	A. Cellular Eligibility	8
	B. LEC Eligibility	13

JAN - 8-19931

DEFICE OF THE SECRETARY

FEDERAL COMMUNICATIONS COMMISSION Before the FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. 20554

In the Matter of)	
Amendment of the Commission's)	GEN Docket No. 90-314
Rules to Establish New Personal)	ET Docket No. 92-100
Communications Services)	

REPLY COMMENTS OF SPRINT

Sprint Corporation ("Sprint"), on behalf of Sprint Communications Company L.P. and the United Telephone companies, hereby respectfully submits its reply comments in the above captioned docket.

I. INTRODUCTION

Sprint, in its Comments, supported the Commission's proposal to allocate spectrum for personal communications services ("PCS"). Sprint encouraged the Commission's policy to adopt regulations that would promote rapid development of PCS and promote competition.

Sprint asserted that: 1) proposals to allocate less than 30 MHz of spectrum per license are inappropriate and will result in the provision of only niche PCS services; 2) because 30 MHz of spectrum per licenses is required, no more than three licenses per market are appropriate; 3) the Commission's goal of rapid implementation of PCS services tailored to meet the needs of all consumers is best met by MSA/RSA license areas; and 4) license eligibility should promote effective competition by applying a "control" test that allows parties owning minority interests in cellular licenses in the same area to be eligible for PCS licenses.

While relying on its initial comments, Sprint further addresses the proposals of other parties that, in Sprint's opinion, do not facilitate achievement of the Commission's goals.

II. 30 MHZ OF SPECTRUM IS NEEDED FOR A FULL-FEATURED PCS SERVICE

Two diverse opinions on the amount of spectrum needed per license surfaced in the Comments. Some parties championed the use of 20 MHz of spectrum per license; 1 others noted that more than 20 MHz is needed by a licensee to provide a robust, full-featured PCS service. 2

A primary problem with the allocation of only 20 MHz of spectrum for PCS is the interference that can be expected from microwave users of the same spectrum allocation. Because microwave users will not necessarily be forced to relocate, the spectrum that is allocated to PCS will be shared spectrum. As PSC

^{1. &}lt;u>See e.g.</u>, AT&T Comments, Bell Atlantic Comments, Comcast Comments, GTE Comments, McCaw Comments, and USTA Comments.

^{2.} See e.g., APC Comments, Cablevision Comments, Cox Comments, MCI Comments, PCN American Comments, Sprint Comments, and US West Comments.

licensees design their systems to work around current microwave users, the efficiency with which the allocated spectrum may be utilized is diminished. As a result, Sprint believes that at least 30 MHz of this joint-use spectrum is needed both to equal a lesser amount of clear spectrum that is unencumbered by joint use and to approach the utility of the 25 MHz of spectrum allocated to cellular licenses.

PCS holds the promise of exciting, new services. However, these services may not develop in a competitive arena if too little spectrum is available to each licensee. The risk that allocating too small a spectrum range carries is that licensees will not have sufficient spectrum available to deliver a full range of robust and feature rich services to the mass market. ARather, each licensee will be forced to limit its offerings to niche services or consumer segments that are compatible with its 20 MHz sliver of spectrum. Competition would be hampered because each niche player would be incented to target at a different niche.

Deployment of only niche PCS services will neither maximize consumer welfare nor promote low cost provision of the service.

^{3.} See, Cox Comments at 5-10, Revtel Comments at 3, Time-Warner at 5, and MCI at 5.

^{4.} See, NYNEX Comments at Note 26 where NYNEX notes that the "majority of services now under examination by experimental license holders require 20 MHz or less." Each of these experimental niche services may thus use 20 MHz and may prevent the emergence of a full-service provider of PCS.

^{5.} See, Cablevision Comments at 7.

Niche players do not provide the full-range, multi-faceted service that will meet the needs of the largest number of subscribers. Rather than targeting a small, "elite" group with high cost niche services, full-service providers can offer PCS services to the wider public and achieve the economies of scale that will make low prices a possibility. This, in turn, will force other full-service providers in the market to make low prices a reality.

Because a robust service provider meeting the needs of a broader market will require more than 20 MHz of spectrum, ⁶ an under allocation of spectrum will lead to competitive failure, and thus, a failure of the Commission to achieve one of its primary PCS objectives.

For all these reasons, Sprint continues to support the allocation of 30 MHz of spectrum so that more full-featured PCS service providers will develop and will compete directly with one another.

^{6.} Technically, 20 MHz of clear spectrum might be sufficient to provide full-service PCS. However, the cost of providing full-service PCS over only 20 MHz of spectrum will be prohibitive because of the larger number of cells that must be deployed. PCS providers might not be able to cost justify deployment of sufficient infrastructure to offer full-service PCS. As a result, niche services that do not require the very high level of investment necessary to provide full-service PCS on 20 MHz of spectrum will likely be all that is deployed. If more spectrum, such as 30 MHz per license, is allocated, the infrastructure deployment cost drops and the likelihood of the emergence of full-service PCS providers increases dramatically.

III. THREE LICENSES PER MARKET ARE APPROPRIATE

Closely associated with the need for 30 MHz of spectrum per licensee is the number of licenses per market. With only 140 MHz of spectrum being allocated for PCS, three licenses for PCS are appropriate, using 90 MHz of the total of 140 MHz available. The remaining spectrum should be used for unlicensed uses 7 and some held as a reserve for future uses. 8

The Commission has stated its preference for viable competition in PCS. Several commenters supported five PCS licenses using the argument that the more competitors the better. ⁹ Cablevision appropriately points out, however, that five licenses will result in niche players without direct competition or adequate spectrum. ¹⁰ As discussed in II above, Sprint agrees with Cablevision's reasoning on this point.

Wireless service providers will include both the PCS licensees that are the subject of this proceeding and the current cellular providers. While cellular providers may not be in a position to immediately offer a full PCS service, they will be in

^{7. &}lt;u>See</u>, <u>e.g.</u>, Ameritech Comments, APC Comments, Hewlett Packard Comments, and Pactel Comments.

^{8.} See e.g., Ameritech Comments, APC Comments, PCN America Comments, and US West Comments.

^{9.} See e.g., Alltel Comments, AT&T Comments, BellSouth Comments, Lincoln Telephone Comments, McCaw Comments, and Rochester Telephone Comments.

^{10.} Cablevision at 6.

a position where they can migrate their current mobile services to PCS-type services. This means that, under Sprint's proposal, the PCS market place will have two cellular competitors, three PCS licensees, and, potentially, an ESMR competitor. Surely, five or six competitors should be sufficient to provide a robust competitive environment.

IV. PCS LICENSE AREAS SHOULD BE COTERMINOUS WITH CELLULAR MSAS AND RSAS

The Commission tentatively concluded that PCS service areas should be larger than those licensed to cellular ¹¹ and failed to propose MSAs and RSA. ¹² The overwhelming response to this pro-

^{11.} Notice of Proposal Rulemaking and Tentative Decision, FCC 92-333, released August 14, 1992, GEN Docket No. 90-314, ET Docket No. 92-100, ("NPRM") at 60.

gested by the Commission, the general topic of geographic license size was placed on notice and the parties were given an adequate opportunity to comment on the issues. Ample case law exists to support the Commission's adoption of MSAs and RSAs as the appropriate geographic license scope. (See, Daniel International Corp. v. Occupational Safety & Health Review Com. (1981, CA4) 656 F2d 925; Connecticut Light & Power Co. v. Nuclear Regulatory Com. (1982) 218 App. DC 134, 673 F2d 525, cert den 459 US 835; and Action Alliance of Senior Citizens v. Bowers (1988, App DC) 846 F2d 1449.) Because parties had ample opportunity to address the initial comments by many of the parties where MSAs and RSAs were proposed, any alleged defect in notice is removed and the Commission has ample justification, on the record, to adopt MSAs and RSAs as the appropriate license scope.

posal was negative. Most commenters supported the use of MSAs and RSAs for PCS licensing purposes. 13

Sprint strongly supports the majority view that small licensing areas are best for PCS. To the extent that economies of scale or scope are important in PCS, the after market will control consolidation. Licenses need not be large, initially, to encourage deployment. Rather, smaller licenses will encourage rapid service availability. Holders of small license areas would be encouraged to build quickly or lose their license. this way, small rural areas and less attractive urban areas will quickly receive service. If large service areas are adopted, an operator would logically phase construction plans to reflect the relative worth of different sectors of the large service area. Areas that are most attractive to commercial development will be served quickly, while less attractive rural areas and depressed urban areas could languish for years awaiting expansion into their territory. Smaller service areas, with the incentives of "build here or not at all," bring far greater pressure to quickly construct systems.

Further, smaller service areas provide significant opportunities for those closely associated with the area to cus-

^{13. &}lt;u>See</u>, <u>e.g.</u>, AMTA, BellSouth, Cellular Service, Centel, Century, Cincinnati Bell, Concord Telephone, CTIA, Department of Justice, GTE, Lincoln Telephone, McCaw, New York Department of Public Service, NYNEX, OPATSCO, Point Communications, SNET, Vanguard and Viacom.

tomize service to meet customer needs. Large service areas lack this incentive to meet the needs of specific communities of interest. Additionally, smaller service areas encourage small business entities to enter the market and do not limit the opportunity to participate in PCS to just a few very well financed mega-corporations.

The Commission is familiar with MSAs and RSAs. Expansion of this licensing format to PCS would be a relatively simple matter and one that has great support in the industry. Because of the benefits associated with small service areas, MSAs and RSAs should be adopted for PCS licensing. 14

V. ELIGIBILITY FOR PCS SHOULD NOT BE PRECLUDED IF AN ENTITY HOLDS A THIRTY PERCENT OR LESS PROPORTIONAL MARKET INTEREST IN A CELLULAR LICENSE FOR THE SAME OR AN OVERLAPPING AREA

A. Cellular Eligibility

Sprint's Comments support eligibility requirements for PCS that encourage wide participation and foster competition. ¹⁵ Sprint encourages the Commission to adopt PCS eligibility rules that balance the benefits of participation by cellular providers against the possibility of anti-competitive behavior. Toward

^{14.} Sprint could support BTAs because they are relatively small areas and would bring most of the competitive benefits of MSAs and RSAs. LATAs, MTAs, and National licensees are all overly large for consideration as appropriate PCS license areas.

^{15.} Sprint Comments at 9.

that end, Sprint opposes any rule that actually or virtually prohibits eligibility of non-dominant cellular providers for PCS licenses in the same or an overlapping area. Sprint's Comments recommend that the Commission adopt a rule allowing companies, including LECs, to apply for PCS licenses in market areas where they have 30 percent (or less) proportional market interest in a cellular licensee. ¹⁶ If market areas larger than MSAs are selected, Sprint recommends a formula that determines permissible proportional market interests. This formula first takes the ownership percent times the overlapping POPs, by county, and then divides this product by the total market POPs. If the resulting product is less than 30 percent, the cellular provider should be eligible to apply for a PCS license in that area. ¹⁷

Several commenters agreed that the current cellular ownership standard set forth in Section 22.921 of the Commission's Rules, proposed in the NPRM to be applied to limit minority ownership in PCS applicants, is overly restrictive. As pointed out in Sprint's Comments, this one percent/five percent

^{16.} Id. at 10-13.

^{17.} Id. at 12.

^{18.} See, e.g., Comments of Vanguard Cellular Systems at 19 Associated PCN Company at 12-14, Citizen Utilities Company at 8, Cincinnati Bell at 9, and Ameritech at 15.

(for publicly traded companies) ownership limitation does not recognize the benefits that cellular providers with minority interests in particular markets could bring to PCS. 19

Some of the comments argue that cellular companies should be precluded from obtaining PCS licenses in common or overlapping areas. These comments fail to distinguish between majority and minority cellular interests and urge total exclusion of cellular carriers from receiving PCS licenses in their service areas. 20

This approach neither recognizes a lack of control by minority owners nor does it strike the correct public policy balance. Cellular providers, in general, possess service and technology expertise and the ability to obtain capital to rapidly implement service to the public. These benefits should be recognized, and the Commission should permit the knowledge and capabilities of cellular providers to be harnessed as a procompetitive force in developing PCS. Sprint encourages the Commission to specifically tailor its rules to address the anticompetitive harms it seeks to prevent, and not stifle innovation by adopting overly exclusionary rules that eliminate the eligibility of minority cellular owners to participate in PCS in their

^{19.} Sprint Comments at 10.

^{20.} See, e.g., Comments of PCN America at 6-7 and Teleport Denver at 2-3.

service area or that prohibit cellular carriers from participating in PCS licenses outside their majority owned service territory.

For these reasons, the NPRM's proposal to apply the Section 22.921 ownership attribution standard to PCS is not in the public interest, because the standard does not take into account the balance of factors present in today's telecommunications marketplace, including the benefits of using existing expertise and capabilities. A review of the history of Section 22.921 reveals that the rule was not specifically developed for wireless services. Instead the rule evolved from mass media ownership rules, and even there the Commission currently is considering revisions. 21

The ownership attribution rules were adopted from mass media rules as a part of the Commission's attempt to limit the number of filings in cellular lotteries. The Commission had included the 1%/5% ownership attribution standard when it adopted rules and procedures for selecting Low Power Television ("LPTV")

^{21.} See, Notice of Proposed Rulemaking "In the Matter of Review of the Commission's Regulations and Policies Affecting Investment in the Broadcast Industry," (MM Docket No. 92-51, 7 FCC Rcd. 2654, released April 1, 1992), where the Commission currently is seeking comment upon raising the basic attribution benchmark for "widely held" broadcast companies from 5% to 10% and the standard for passive institutional investors from 10 to 20%, and including small and minority business enterprises in the "passive" category.

licenses from among applicants through random selection lotteries. 22 When the Commission developed lottery rules for awarding cellular licenses, it decided to adopt the "very strict approach [taken in LPTV lotteries] to ownership in competing cellular applications . . . in order to avoid numerous protracted challenges to selectees and litigation of that difficult issue after holding lotteries." 23

Thus, as Cincinnati Bell Telephone ("CBT") points out in its Comments, the catalyst for the promulgation of 22.921(b) was an attempt to prevent abuse of the Commission's lottery process by "application mills." It appears that the ownership standard was adopted merely to curb multiple applications being filed for the same cellular license by legally-related entities. Its application to PCS eligibility standards would be overly restrictive, and should be rejected. Instead, the Commission should adopt a more reasonable minority ownership standard, such

^{22.} See, 3 FCC 2d 952 at 971 (1983).

^{23.} Amendment of the Commission's Rules to Allow Selection From Among Mutually Exclusive Competing Cellular Applications Using Random Section of Lotteries Instead of Comparative Hearings, 98 FCC 2d 175 at 218 (1984).

^{24.} CBT Comments at 9. See also further discussion in CBT Comments at 9-13.

as the one Sprint proposes in its Comments. Such an approach would be consistent with the more flexible approaches to minority interests the Commission has taken in other areas. 25

B. LEC Eligibility

Sprint supports local exchange carrier ("LEC") eligibility for PCS licenses except where the LEC holds an impermissible interest in a cellular provider in the particular market area. 26

Some parties urge that LECs be precluded from providing PCS in their service areas. ²⁷ To the extent the Commission has any competitive concerns regarding the provision of PCS by LECS, it can apply non-structural safeguards, as necessary, and non-discriminatory interconnection requirements, as it has done for other telecommunications services. The best balance for the

^{25.} See, for example the recent "Video Dial Tone" Order, In the Matter of Telephone Company-Cable Television Cross-Ownership Rules, CC Docket No. 87-266, released August 14, 1992, 71 RR 2d 66 at 76, fn. 73, wherein the cable-broadcast rules regarding "cognizable" interests are discussed. Cognizable interests include partnerships and direct ownership interests but not stock ownership of less than 5 percent. In addition where there is a single holder of more than 50 percent of the voting stock, no minority voting interest is cognizable, and limited partnership interests where the limited partner is not included in management are not included as cognizable interests. The Commission proposes to adopt similar affiliation standards for telephone/cable cross-ownership.

^{26.} Sprint Comments at 12-13.

^{27.} See, e.g., Comments of Personal Communications Network Services of New York at 21 where the comments speculate that "both the LECs and cellular service providers would be tempted to cross-subsidize their PCS ventures . . . " .).

Commission to strike is one that permits LECs to incorporate innovative personal communications service technologies with local service provision.

Respectfully submitted,

SPRINT COMMUNICATIONS COMPANY L.P.

Βv

Jay C. Keithley
Leon M. Kestenbaum
Phyllis A. Whitten
1850 M Street N.W.
Suite 1100
Washington, D.C. 20036
(202) 828-1030

W. Richard Morris P. O. Box 11315 Kansas City, MO 64112 (913) 624-3096

ITS ATTORNEYS

January 8, 1993

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing "Reply Comments" of Sprint Corporation have been sent via first class mail, postage prepaid, on this the 8th day of January, 1993, to the below-listed parties:

Alfred C. Sikes*
Chairman
Federal Communications Commission
1919 M Street, N.W., #814
Washington, D.C. 20554

Sherrie P. Marshall*
Commissioner
Federal Communications Commission
1919 M Street, N.W., #826
Washington, D.C. 20554

Ervin S. Duggan*
Commissioner
Federal Communications Commission
1919 M Street, N.W., #832
Washington, D.C. 20554

Thomas P. Stanley, Chief Engineer*
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7002
Washington, D.C. 20554

David R. Siddall, Chief*
Frequency Allocation Branch
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7102
Washington, D.C. 20554

James D. Schlichting, Chief*
Policy & Program Planning Division
Federal Communications Commission
1919 M Street, N.W., #544
Washington, D.C. 20554

Bruce Franca, Deputy Chief Engineer*
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7002
Washington, D.C. 20554

Downtown Copy Center 1919 M Street, N.W., #246 Washington, D.C. 20554 James H. Quello*
Commissioner
Federal Communications Commission
1919 M Street, N.W., #802
Washington, D.C. 20554

Andrew C. Barrett*
Commissioner
Federal Communications Commission
1919 M Street, N.W., #844
Washington, D.C. 20554

Cheryl A. Tritt, Chief*
Common Carrier Bureau
Federal Communications Commission
1919 M Street, N.W., #500
Washington, D.C. 20554

Will McGibbon, Chief*
Spectrum Engineering Division
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7130
Washington, D.C. 20554

Fred Thomas*
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7338
Washington, D.C. 20554

Thomas Mooring*
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7330
Washington, D.C. 20554

Carl Huie*
Office of Engineering & Technology
Federal Communications Commission
2025 M Street, N.W., #7102-B
Washington, D.C. 20554

Advanced MobileComm Technologies, Inc. 82 Devonshire Street, R25D Boston, MA 02109

Russell H. Fox
Gardner, Carton & Douglas
1301 K Street, N.W.
Suite 900, East Tower
Washington, D.C. 20005
Attorney for PowerSpectrum, Inc.

Robert N. Reiland Ameritech Operating Companies 30 South Wacker Drive Suite 3900 Chicago, IL 60606

Thomas J. Keller
Jacqueline R. Kinney
Verner, Liipfert, Bernhard,
McPherson & Hand, Chartered
901 15th Street, N.W., Suite 700
Washington, D.C. 20005
Attorneys for Association of
American Railroads

William B. Barfield
BellSouth Corporation; BellSouth
Enterprises, Inc.; Mobile
Communications Corp. of America
1155 Peachtree Street, N.E.
Suite 1800
Atlanta, GA 30367-6000

Fred J. McCallum, Jr.
BellSouth Corporation; BellSouth
Enterprises, Inc.; Mobile
Communications Corp. of America
1800 East County Line Road
Suite 300
Ridgeland, Mississippi 39157

W. Harrell Freeman
President
Blooston, Mordkofsky, Jackson
& Dickens
2120 L Street, N.W., Suite 300
Washington, D.C. 20037
Counsel for Freeman Engineering
Associates, Inc.

Floyd S. Keene Brian P. Gilomen Ameritech Operating Companies Room 4H64 2000 W. Ameritech Center Drive Hoffman Estates, IL 60196

Francine J. Berry
David P. Condit
Peter H. Jacoby
Sandra Williams Smith
American Telephone & Telegraph Co.
295 North Maple Avenue
Room 3244J1
Basking Ridge, NJ 07920

Benjamin A. McKnight Arthur Andersen & Company 33 W. Monroe Street Chicago, IL 60603

James R. Young
William L. Roughton
Raymond L. Pickholtz
Bell Atlantic Personal
Communications, Inc.
1710 H Street, N.W.
Washington, D.C. 20006

Charles P. Featherstun
BellSouth Corporation; BellSouth
Enterprises, Inc.; Mobile
Communications Corp. of America
1100 Peachtree Street, N.E.
Suite 900
Atlanta, GA 30309-4599

Carl W. Northrop Bryan Cave Suite 700 700 13th Street, N.W. Washington, D.C. 20005

Jeffrey Blumenfeld Glenn B. Manishin Charon J. Harris 1615 M Street, N.W., Suite 700 Washington, D.C. 20036 Attorneys for PageMart, Inc. Janice E. Kerr
Edward W. O'Neill
Mark Fogelman
California Public Utilities
Commission
505 Van Ness Avenue
San Francisco, CA 94102

John D. Lockton Managing Partner Corporate Technology Partners 520 S. El Camino Real Suite 715 San Mateo, CA 94402

Digital Spread Spectrum
Technologies, Inc.
a subsidiary of CYLINK Corporation
110 South Wolfe Road
Sunnyvale, CA 94086

Robert J. Keller Fleischman and Walsh 1400 Sixteenth Street, N.W. Washington, D.C. 20036 Attorney for Associated PCN Company

George Petrutsas
Fletcher, Heald & Hildreth
1225 Connecticut Ave., N.W.
Suite 400
Washington, D.C. 20036
Attorney for Harris Corporation
-- Farinon Division; Matsushita
Communication Industrial Corp.
of America

Edward C. Schmults
Senior Vice-President
External Affairs & General Counsel
GTE Corporation
One Stamford Forum
Stamford, CT 06904

Greg C. Carr Boston Technology, Inc. One Kendall Square Cambridge, MA 02139

Jonathan D. Blake
Kurt A. Wimmer
Ellen K. Snyder
Covington & Burling
1201 Pennsylvania Ave., N.W.
Post Office Box 7566
Washington, D.C. 20044
Attorneys for American Personal
Communications

Werner K. Hartenberger
Laura H. Phillips
Jonathan M. Levy
Dow, Lohnes & Albertson
1255 23rd St., N.W., Suite 500
Washington, D.C. 20037
Attorneys for Cox Enterprises, Inc.

Gardner F. Gillespie Hogan & Hartson 555 13th Street, N.W. Washington, D.C. 20004 Attorney for PerTel, Inc.

William D. Baskett III
Thomas E. Taylor
James F. Lummanick
Frost & Jacobs
2500 Central Trust Center
201 East Fifth Street
Cincinnati, OH 45202
Counsel for Cincinnati Bell
Telephone Company

Daniel L. Bart GTE Corporation 1850 M Street, N.W., Suite 1200 Washington, D.C. 20036 John W. Pettit
Neal M. Goldberg
Christina J. Funderburk
Hopkins & Sutter
888 16th Street, N.W., Suite 700
Washington, D.C. 20006
Counsel for Tandy Corporation

Brice L. Clark
Program Manager
Mobile Communications
Hewlett-Packard Company
8000 Foothills Blvd.
Roseville, CA 95678

Paul J. Sinderbrand
Dawn G. Alexander
Keck, Mahin & Cate
1201 New York Ave., N.W.
Penthouse Suite
Washington, D.C. 20005
Attorneys for Gateway Technology,
Inc.

Shirley S. Fujimoto
Christine M. Gill
Brian T. Ashby
Keller and Heckman
1001 G Street, N.W.
Suite 500 West
Washington, D.C. 20001
Attorneys for Domestic Automation
Company

Margot Smiley Humphrey
Koteen & Naftalin
1150 Connecticut Ave., N.W.
Suite 1000
Washington, D.C. 20036
Attorney for National Rural
Telecom Association

Mark R. Hamilton Scott K. Morris McCaw Cellular Communications, Inc. 5400 Carillon Point Kirkland, WA 98033 Leonard S. Golding Vice President Hughes Network Systems, Inc. 11717 Exploration Lane Germantown, MD 20874

Darrell S. Townsley Illinois Commerce Commission 160 North LaSalle Street Suite C-800 Chicago, IL 60601

Robert S. Foosaner, Esq. Lawrence R. Krevor, Esq. Fleet Call, Inc. 601 13th Street, N.W. Suite 1110 South Washington, D.C. 20005

Chandos A. Rypinski President LACE, Inc. 655 Redwood Highway, #340 Mill Valley, CA 94941

Mark S. Fowler
James H. Barker
Latham & Watkins
1001 Pennsylvania Ave., N.W.
Suite 1300
Washington, D.C. 20004
Attorneys for Bell Atlantic
Personal Communications, Inc.

Elizabeth R. Sachs, Esq. Lukas, McGowan, Nace & Gutierrez 1819 H Street, N.W., Suite 700 Washington, D.C. 20006 M. John Bowen, Jr.
John W. Hunter
McNair Law Firm, P.A.
1155 Fifteenth St., N.W.
Washington, D.C. 20005
Attorneys for Palmetto Rural
Telephone Cooperative, Inc.;
South Carolina Telephone
Association

David E. Weisman
Alan S. Tilles
Meyer, Faller, Weisman
& Rosenberg, P.C.
4400 Jenifer St., N.W., Suite 380
Washington, D.C. 20015
Attorneys for National Association
of Business & Educational Radio,
Inc.

Henry L. Baumann
Barry D. Umansky
Teresa L. Inscoe
National Association of
Broadcasters
1771 N Street, N.W.
Washington, D.C. 20036

David Cosson
L. Marie Guillory
National Telephone Cooperative
Association
2626 Pennsylvania Ave., N.W.
Washington, D.C. 20037

Robert A. Mazer
Nixon, Hargrave, Devans & Doyle
One Thomas Circle, N.W.
Suite 800
Washington, D.C. 20005
Attorney for The Lincoln
Telephone & Telegraph Corp.

Mirijana Kocho
Mary McDermott
George J. Brennan
Patrick J. O'Shea
NYNEX Corporation
120 Bloomingdale Road
White Plains, NY 10605

Larry A. Blosser
Donald J. Elardo
MCI Telecommunications Corp.
1801 Pennsylvania Ave., N.W.
Washington, D.C. 20006

Michael D. Kennedy Stuart Overby Motorola Inc. 1350 I Street, N.W. Suite 400 Washington, D.C. 20005

Frank Press, President
National Academy of Sciences
Committee on Radio Frequencies
2101 Constitution Avenue
Washington, D.C. 20418

William J. Cowan
Penny B. Rubin
New York Department of Public
Service
Three Empire State Plaza
Albany, NY 12223

David L. Hill
Audrey P. Rasmussen
O'Connor & Hannan
1919 Pennsylvania Ave., N.W.
Suite 800
Washington, D.C. 20006
Attorneys for Florida Cellular RSA
Limited Partnership

Douglas G. Smith, President Omnipoint Communications, Inc. 7150 Campus Drive Colorado Springs, CO 80920 Lisa M. Zaina
Matthew L. Dosch
OPASTCO
21 Dupont Circle, N.W., Suite 700
Washington, D.C. 20036

Margaret deB. Brown Pacific Telesis 130 Kearny Street, Room 3659 San Francisco, CA 94108

Daryl L. Avery
Peter G. Wolfe
Howard C. Davenport
Public Service Commission of the
District of Columbia
450 Fifth Street, N.W.
Washington, D.C. 20001

Josephine S. Trubek Michael J. Shortley, III Rochester Telephone Company 180 South Clinton Avenue Rochester, NY 14646

A. Thomas Carroccio, Esq.
Santarelli, Smith & Carroccio
1155 Connecticut Ave., N.W.
9th Floor
Washington, D.C. 20036
Attorney for Pulson Communications
Corporation

Dr. Donald L. Schilling
Executive Vice President
InterDigital Communications Corp.
85 Old Shore Road
Suite 200
Port Washington, NY 11050

Andrew D. Lipman
Shelley L. Spencer
Margaret M. Charles
Swidler & Berlin, Chartered
3000 K Street, N.W., Suite 300
Washington, D.C. 20007
Attorneys for Personal
Communications Network
Services of New York, Inc.

James L. Wurtz Pacific Telesis Group 1275 Pennsylvania Ave., N.W. Washington, D.C. 20004

Thomas E. Martinson Vice President PCN America, Inc. 153 East 53rd Street New York, NY 10022

Judith St. Ledger-Roty
Robert J. Aamoth
Kathleen A. Kirby
Reed Smith Shaw & McClay
1200 18th Street, N.W.
Washington, D.C. 20036
Attorneys for Paging Network, Inc.

John E. McNulty President and CEO Rose Communications, Inc. 2390 Walsh Avenue Santa Clara, CA 95051

Lawrence M. Miller
Steven C. Schaffer
Schwartz, Woods & Miller
The Dupont Circle Building
1350 Connecticut Ave., N.W.
Washington, D.C. 20036
Attorneys for Global Enhanced
Messaging Venture

Linda D. Hershman
The Southern New England
Telecommunications Corporation
227 Church Street
New Haven, CT 06510

Thomas J. Casey
Jay L. Birnbaum
Skadden, Arps, Slate, Meagher
& Flom
1440 New York Avenue, N.W.
Washington, D.C. 20005
Attorneys for Cellular
Communications, Inc.

Robert H. Kyle
Lawrence J. Movshin
Thelen, Marrin, Johnson & Bridges
805 15th Street, N.W., 9th Floor
Washington, D.C. 20005
Counsel for The Small Business
PCS Association

Alden F. Abbott
Jana P. Gagner
Brian Harris
Office of Policy Analysis and
Development
National Telecommunications and
Information Administration
U.S. Department of Commerce
14th & Constitution Ave., N.W.
Room 4713
Washington, D.C. 20230

Lawrence E. Sarjeant
Keith G. Galitz
Randall S. Coleman
U S West, Inc.
1020 19th Street, N.W., Suite 700
Washington, D.C. 20036

Richard E. Wiley
R. Michael Senkowski
David E. Hilliard
Eric W. DeSilva
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006
Attorneys for Mobile
Telecommunication Technologies
Corporation

David C. Jatlow Young & Jatlow 2300 N Street, N.W., Suite 600 Washington, D.C. 20037 Attorney for the Ericsson Corporation

Stephen G. Kraskin Sylvia Lesse Caressa D. Bennet 2120 L Street, N.W., Suite 810 Washington, D.C. 20037 Attorneys for The Rural Independent Coalition Terrence P. McGarty President and Principal Telmarc Telecommunications, Inc. 265 Franklin Street Boston, MA 02110

Martin T. McCue Linda Kent United States Telephone Association 900 19th Street, N.W. Suite 800 Washington, D.C. 20006-2105

Jeffrey L. Sheldon
Mara J. Primosch
Sean A. Stokes
Utilities Telecommunications
Council
1140 Connecticut Ave., N.W.
Suite 1140
Washington, D.C. 20036

Ronnie Rand
John D. Lane
Robert M. Gurss
Counsel for Associated PublicSafety Communications Officers,
Inc.
Wilkes, Artis, Hedrick & Lane,
Chartered
1666 K Street, N.W.
Washington, D.C. 20006-2866

Raymond G. Bender, Jr.
Deborah R. Broughton
Dow, Lohnes & Albertson
1255 23rd Street, N.W.
Washington, D.C. 20037
Counsel for dbX Corporation

Marvin Hirschberg Director Advanced Cordless Technologies, Inc. Building 0 150 River Road Montville, NJ 07045